

## **Claims**

1. A remote controller for controlling digital household devices, including a power unit and an input unit, the remote controller further comprising:
  - a radio unit for operating at least two wireless communication modes;
  - a control unit for selecting one of the at least two wireless communication modes; and
  - wherein the control unit selects one wireless communication mode from the at least two wireless communication modes according to control commands selected by a user and transmits the control commands to the devices for controlling operations of the devices.
2. A remote controller according to claim 1, wherein the radio unit comprises a low power dissipation radio unit and a high speed transmission unit.
3. A remote controller according to claim 2, wherein the low power dissipation radio unit adopts one of wireless communication protocols including but not limited to Bluetooth protocol, Zigbee protocol and IrDA infrared protocol.
4. A remote controller according to claim 2, wherein the high speed transmission unit adopts one of wireless communication protocols including but not limited to HomeRF protocol, UWB protocol, IEEE802.11x protocol, IEEE802.11a protocol, IEEE802.11b protocol, IEEE802.11d protocol, IEEE802.11.g protocol, IEEE802.15 protocol, IEEE802.16 protocol, IEEE802.3 protocol, GSM protocol, GPRS protocol, CDMA protocol, 2.5G protocol and 3G protocol.
5. A remote controller according to claim 2, wherein the operation of the low power dissipation radio unit is preset as a default mode.
6. A remote controller according to claim 1, wherein the control unit selects one

corresponding communication mode from the at least two wireless communication modes according to the control commands inputted by the user and/or characteristics of data transmitted by the radio unit.

7. A wireless control system for digital household devices, comprising:
  - a remote controller operationable at least two wireless communication modes for wirelessly transmitting control commands;
  - a receiver or one of the household devices for receiving or executing the control commands transmitted by the remote controller, and

wherein the remote controller selects one wireless communication mode from the at least two wireless communication modes according to the control commands to wirelessly communicate with said device or said receiver.
8. The system according to claim 7, wherein the remote controller implements said at least two wireless communication modes by providing and operating a low power dissipation radio unit and a high speed transmission unit.
9. The system according to claim 8, wherein the low power dissipation radio unit and the high speed transmission unit are switchable under the control of a control unit.
10. The system according to claim 8, wherein the low power dissipation radio unit adopts one of wireless communication protocols including but not limited to Bluetooth protocol, Zigbee protocol and IrDA infrared protocol.